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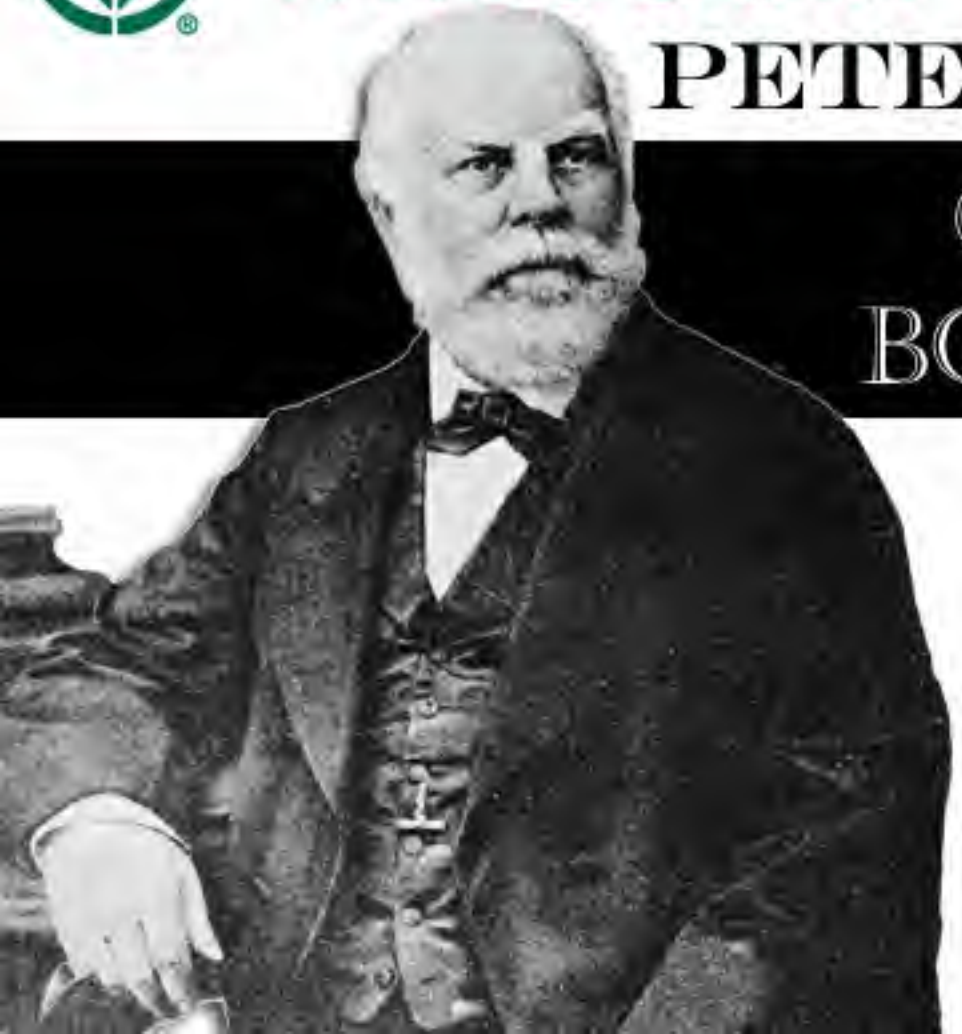
George Engelmann Botanical Notebooks



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reins zur Beförderung des Gartenbaues, 1860, Nos. 1–52—1861, Nos. 1–6, Berlin, *from the Society;* Atti della Societa Ital. di Scienze Nat., Milano, Vol. II., Fasc. 2, 1860, *from the Society;* Atti dell I. R. Istituto Veneto, T. V., Ser. iii., Disp. 10—T. VI., Ser. iii., Disp. 1–3, 1860–1, *from the Society;* Visir-und Rechenınstrumente von Ernst Sedlaczeh, Wien, 1856,—Rechenschieber, von E. Sedlaczeh, Wien, 1856,—Kompendium der ebenen und sfärischen Trigonometrie von E. Sedlaczeh, Wien, 1856, *from Mr. Senoner;* L'Ortolano, Giornale Popolare d'Orticultura, Trieste, Anno I. 1–12, III. 1–9, 1859–60,—Allocuzione da Prof. Adolfo Stopice, Trieste, 1860, *from the Society;* Fr. Ambrosii Flora Tiroliæ Australis, Vol. II., Pt. 4, *from the Author;* Verhandl. des Naturh. Vereins, Bonn, Jahrg. XVII., 1–2, 1860, *from the Society;* Sitzungsb. der K. K. Akad der Wissenchaften, Wien, Band XLII., No. 22–28, 1860, *from the Society;* Nachrichten von der Georg-Augusts-Univ. u. der K. Gesellsch. der Wissensch., Göttingen, 1860, No. 1–29, *from the Society;* Bull. de la Société Linnéenne de Normandie, Vol. V., 1859–60, Caen, 1861, *from the Society;* Mém. de l'Acad. Imperiale de Metz, Ann. XLI., 1859–60, *from the Academy;* Jahrbücher des Vereins für Naturk. in Nassau, XIV. Heft, Wiesbaden, 1859, *from the Society;* Dr. J. C. Ed. Hoser's Rückblicke, Prag, 1848, von Dr. Weitenweber,—Sitzungsb. der K. böhm. Gesellsch. der Wissenschaften, Prag, 1859, Juli–Dec.—1860, Jan.–Juni, *from the Society;* I. Bericht des Offenbacher Vereins für Naturk, 1860, *from the Society;* Würzburger Medicin. Zeitschrift, II. Band, 1–2 Heft, 1861, *from the Society;* Der Zoologische Garten, von Dr. D. F. Weinland, Jahrg. II., No. 1–6, 1860–61, *from the Editor;* XX. Bericht über das Museum Francisco-Carolinum, Linz, 1860, *from the Institution;* Monatsb. der K. Preuss. Akad. der Wissenschaften, 1860, Berlin,—General Register, 1836-58, Berlin 1860, *from the Academy;* Gelehrte Anzeigen, Vol. 49 & 50,—Sitzungsb. des K. bayer. Akad. des Wissenschaften, 1860, Heft 1–3, München,—Verzeichniss der Mitglieder, 1860,—Bedeutung der Sanskritstudien, von Dr. Wilh. Christ, 1860,—Denkrede auf. Alex. von Humboldt, von C. F. P. von Martius, 1860,—Grenzen und Grenzgebiete der physikalischen Forschung, von Dr. C. Harless, 1860, *from the Royal Academy;* Proc. Acad. Nat. Sciences, Philad., May, 1861, *from the Academy;* 43d Ann. Rep. of the Trustees of the New York State Lib[illegible]

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11559

MISSOURI BOTANICAL GARDEN
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Dr. Koch presented specimens of quartz and of the silicious conglomerate from Madison County mentioned in Dr. Hilgard's letter.

Dr. Engelmann stated that the mean temperature of July (77.°5) had been lower than the usual mean of that month, and that the fall of rain during the same month (2.04 inches) was about one-half less than usual.

Dr. Wislizenus stated that the mean of atmospheric electricity of July had been 3.5° less than that of the month previous, and that the amount had been gradually decreasing since winter.

August 19, 1861.

The President, Dr. ENGELMANN, in the chair.

Six members present.

A letter was read from A. F. Bandelier, Jr., Highland, Ill., Aug. 1, 1861, communicating meteorological observations at Highland.

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(probably P. densiflora or P. Massoniana — Nov 13 1879
accidentally mixed with other
Japan & Chinese species

×30

a little hyperdermic ÷ angles
and little within sheath

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11560

Henry T. Rohlfing,

APOTHECARY,

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.,

ST. LOUIS, MO.

No. ..... Date, ... 187

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Geo. Engelmann, M. D.,
No. 3003 Locust Street.

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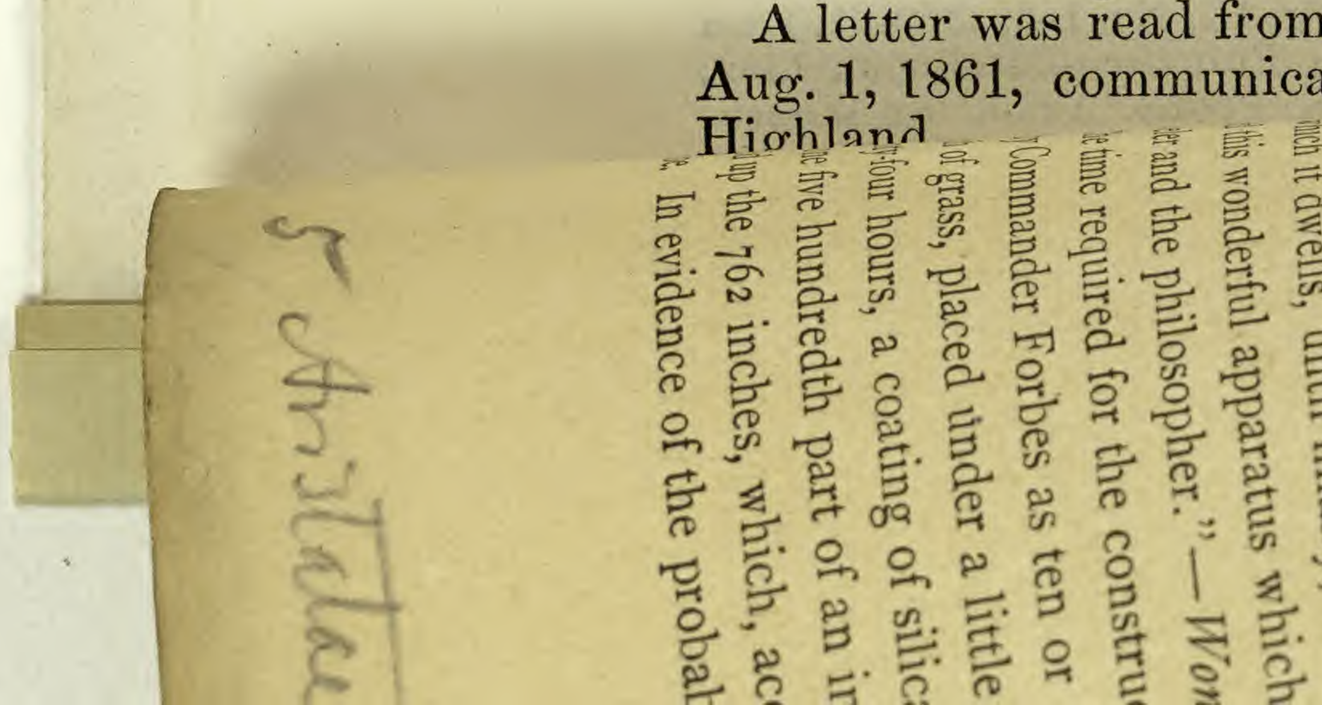

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smooth silicious plaster, so hard as to resist the blow of a hammer; and the first

stomach is complicated and has a long alimentary canal, while in the insectivorous species the stomach is simple and the intestines short, like the carnivora.

In the United States all our bats belong to the insectivorous species, and are small in size. But in South America and the West Indies there are many large fruit-eating bats; in fact all the frugivorous bats are confined to tropical climates. Among the fruit-eating bats is the genas phyllostoma, peculiar to South America. In these the tongue is furnished with a row of wart-like protuberances at its outer extremity, arranged in a circle, and forming a complete sucking tube, by means of which these bats are enabled to suck the juice of fruit and the blood of animals. The vampire bat is a large species of the genus. Its natural food is insects, but if hard pressed it will suck the blood of poultry, cattle, and even of man. The blood is obtained entirely by suction from the capaillary vessels and not through any wounds made by the teeth. The stories told by travelers of the bats destroying people at night by sucking their blood, fanning their victims into unconsciousness by the flapping of their wings, are highly exaggerated and fabulous. The vampire is entirely harmless, and not at all feared by the natives. Among other foreign bats is the genus nycteris, of Africa. In these bats the skin is extremely loose, and

ground is elevated as before, and the spring has to move forward. Thus it is compelled to travel round and round, discharging its silica and deepening the shaft in which it dwells, until finally, in the course of ages, the simple spring has produced this wonderful apparatus which has so long puzzled and astonished both the traveler and the philosopher."—*Wonders of the Yellowstone.*

"The time required for the construction of the Great Geyser has been estimated by Commander Forbes as ten or eleven centuries, on the following grounds: A bunch of grass, placed under a little fall made by the ejected water, receives, in twenty-four hours, a coating of silica the thickness of a thin sheet of paper, or about one five hundredth part of an inch. At this rate it would take 1036 years to build up the 762 inches, which, according to his measurement, is the depth of the tube. In evidence of the probable truth of this estimate, he makes note of the

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THE SCIENTIFIC MONTHLY.

SUB-ORDER CHIROPTERA. (The Bats.)

THE ORDINARY BATS (*Family Vespertilionidæ.*)—Insectivorous bats, with the snout not appendaged, or merely with two lateral excrescences, wing membranes ample; tail always completely enclosed in the interfemoral membrane or only the last joint exserted.

THE TYPICAL BATS (*Genus Vespertillo*).—Cheeks without excrescences; ears moderate; incisors, two on each side in the upper jaw and three on each side in the lower jaw.

LITTLE BROWN BAT (*Vespertillo Subulatus*).—Teeth 38; molars six on each side in each jaw; ears and wings thin; face small, fox like; high forehead and pointed snout; ears, large, oval, twice the height of the erect tragus; wings, naked; interfemoral membrane entirely naked, except at base; face, whiskered; color, dull olive brown; length, three inches; extent, nine inches; tail, one and one-half inches. Everywhere abundant in North America.

SILVER BLACK BAT (*Vespertillio Noctivagans*).—Teeth 36; molars five on each side in each jaw; ears and wings thin; face small, fox like; high forehead and pointed snout; ears, large, oval, twice the height of the erect tragus; wings, naked; interfemoral membrane entirely naked, except at base; face, whiskered; color, dull olive brown; length, three inches; extent, nine inches; tail, one and one-half inches. Everywhere abundant in North America.

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August 1

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Aug. 1, 1861, communicating m
Highland.

The following donations to th

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5 entire leaves Periph. Indet., subterm ♀

miles from Madison Lake. This spring, which throws the water to a height of 285 feet in an immense solid column, is one of the grandest sights of nature. The orifiice of its tube is encircled by a rim or bank ten feet high.

Prof. Tyndall speaking of the Great Geyser of Iceland says: "It consists of a tube seventy-four feet deep and ten feet in diameter; the tube is surmounted by a basin which measures from north to south fifty-two feet across, and from east to west sixty feet. The interior of the tube and basin are coated with a beautiful smooth silicious plaster, so hard as to resist the blow of a hammer; and the first question is, how was this wonderful tube constructed—how was this perfect plaster laid on? Chemical analysis shows that the water holds silica in solution, and the conjecture might therefore arise that the water had deposited the silica against the sides of the tube and basin, but this is not the case, the water deposits no sediment; no matter how long it may be kept, no solid substance is separated from it. It may be bottled up and kept for years as clear as crystal without showing the slightest tendency to form a precipitate. To answer the question in this way would moreover assume that the shaft was formed by some foreign agency, and that the water merely lined it. The geysers basin, however, rests upon the summit of a mound about forty feet high, and is evident from mere inspection that *the mound has been deposited by the geyser;* but in building up this mound the spring must have formed the tube which perforates the mound, and hence the conclusion that the geyser is the architect of its own tube.

"If we place a quantity of geyser water in an evaporating basin the following takes place: In the center of the basin the liquid deposits nothing, but the sides where it is drawn up by capillary attraction, and thus subjected to speedy evaporation, we find silica deposited. Round the edge a ring of silica is laid on, and not until the evaporation has continued a considerable time do we find the slightest turbidity in the middle of the water.

"This experiment is the microscopic representative of what occurs in Iceland. Imagine the case of a simple thermal silicious spring, whose waters trickle down a gentle enclosure, the water thus exposed evaporates speedily, and silica is deposited. This deposit gradually elevates the side over which the water passes until finally the latter has to take another course. The same takes place here, the ground is elevated as before, and the spring has to move forward. Thus it is compelled to travel round and round, discharging its silica and deepening the shaft in which it dwells, until finally, in the course of ages, the simple spring has produced this wonderful apparatus which has so long puzzled and astonished both the traveler and the philosopher."—*Wonders of the Yellowstone.*

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following facts: first, there is no notice of this fountain in the early history of the colonization of the island 986 years ago, at which time the tube would have been only three feet deep, and its eruptions too slight to attract attention; second, 436 years afterwards, when the tube would have been twenty-six feet deep, and the eruptions proportionally important, this geyser is mentioned; third, accurate records of all occurences were kept by the early inhabitants, and if so remarkable a phenomenon had existed at the time, it would not have been left unnoticed."—*Richardson.*

This silicious deposit often assumes the most beautiful and variegated colors and tints. In the Yellowstone this is peculiarly marked; at one basin will be seen through the transparent waters, an exquisite rose-colored lining, at another bright red, one is a light green another golden and so on through many varieties. A most delicate tint of red is produced by a deposit of oxide of iron; sulpher causes exquisite shades of yellow. "Still others are stained with shades of green, all these colors are brilliant as the brightest aniline dyes."

Another singular feature is that though many hot springs contain enough foreign ingredients to be designated mineral, still in this region much of the water is clear, sparkling and free from taste, seeming to be remarkably free from harmful impurities and is most excellent for drinking and cooking purposes.

In the vicinity of all hot waters, holding silica in solution, a curious phenomenon occurs in the growth of the vegetation. Mosses, grass and trees undergo the process of petrifaction, and become converted substantially into a species of stone, still retaining, however, the form, appearance and structure which was characteristic of them when living vegetables. The silicious solution is absorbed by the circulating fluid of the plant and becomes deposited within its substance, effectually preventing the process of decay, and substituting the stony for the woody material.

In the territory of New Mexico large forests of this silicified wood of great perfection and beauty are still seen; tall trees still erect as in the vigor of their growth, stand as monuments of the time when that particular region was overflowed by the silicious waters. Certain parts of the region of the Yellowstone and other places in our Western territories, afford the same phenomenon, as also do, though on a smaller scale, the plants in the immidiate vicinity of the hot springs of Iceland and the Azores.

But geyser springs do not always emit water in its extreme fluid state, for in these western regions of comparatively recent formation, geologically speaking, there exist localities where the surface of the ground consists of a hardened crust of but a few inches in thickness, underneath which lies a vast quantity of soft tenacious mud. This substance heated to an extreme degree, presents conditions under which we would expect eruptions to occur. Such is indeed the case, and the phenomenon of "mud geysers" presents itself to our view.

"The contents of most of them were of the consistency of thick paint, which they greatly resemble, some being yellow, some pink, others red and some dark brown. This semi-fluid was boiling at a fearful rate, much after the fashion of a hasty-pudding in the last stages of completion. The bubbles, often two feet in

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HLY.

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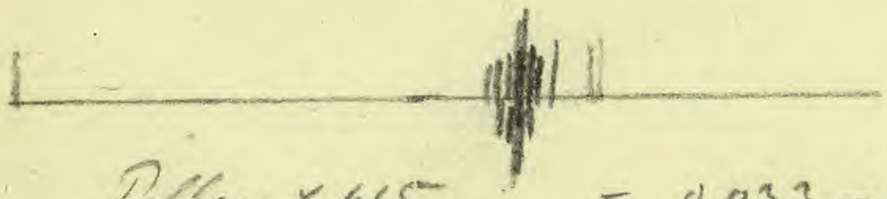
Pinus aristata March 12 1865

Colorado Dr Parry leg 1864



Pollen × 415 = 0.033 – 0.040 Li

mostly 0.035 – 0.036

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GEORGE ENGELMANN HERBARIUM
ASA GRAY COLLECTION
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ALEX. LEITCH,
APOTHECARY & PHARMACEUTIST,
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A. ornata 5— April 1862

3

× 2

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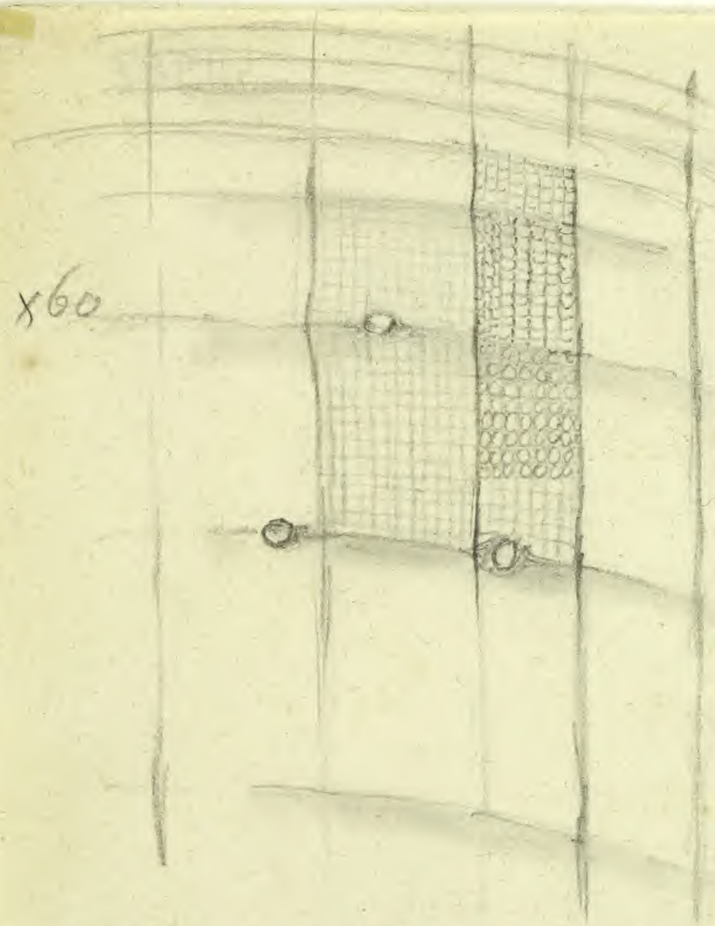
M. W. ALEXANDER,
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,
ST. LOUIS.



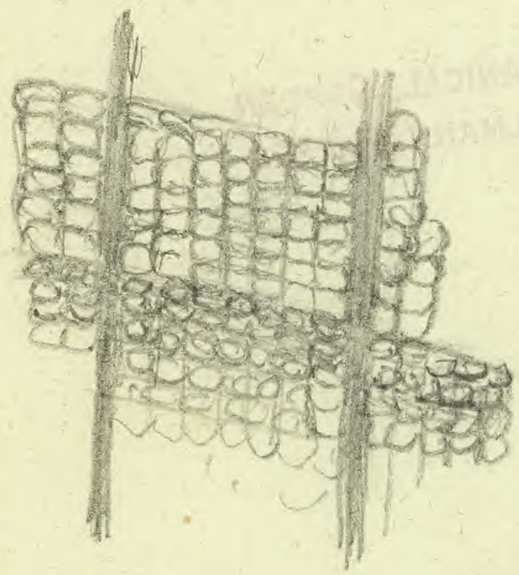
3–6 layers of cells ÷ smallest

15–25 — — —

÷ outer annual rings

Wood cells about $\frac{1}{140}$ line ÷ diameter

x154



Pinus sinitata

wood May 1862

annual rings 48

in specimen exam

(13 Lines diameter)

$\frac{1}{60} - \frac{9}{60}$ lines ~~Diamet~~ width.

or an average annual ring over $\frac{1}{8}$ line

Thick: — Outer $\frac{1}{6}$ & $\frac{1}{60}$

or: average 0.270

extremes 0.166 — 0.016

ADOLPH FELLNER

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ARTHUR LEITCH,

APOTHECARY AND CHEMIST,

Sixth and Market streets, St. Louis, Mo.

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sect. of leaf

Pinus aristata
Colorado Pary

April 1862

× 30

dry

wet

leaf of the
male Cone

11568

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

M. W. ALEXANDER,
SOUTH-EAST CORNER OF FOURTH AND MARKET STREETS,
ST. LOUIS.

0 1 2 3 4 5 6 7 8 9 10
cm
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MISSOURI BOTANICAL GARDEN

4.

3.

1.

a.

b.

1.

c.

5.

8.

7.

9.

2.

b.

a.

2.

c.

9.b.

9.a.

6.

P. Roetter & G. Engelmann del.

Leopold Gast lith.

Pinus aristata.

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cm
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Paulus Roetter del.

Leopold Gast lith.

Pinus aristata.

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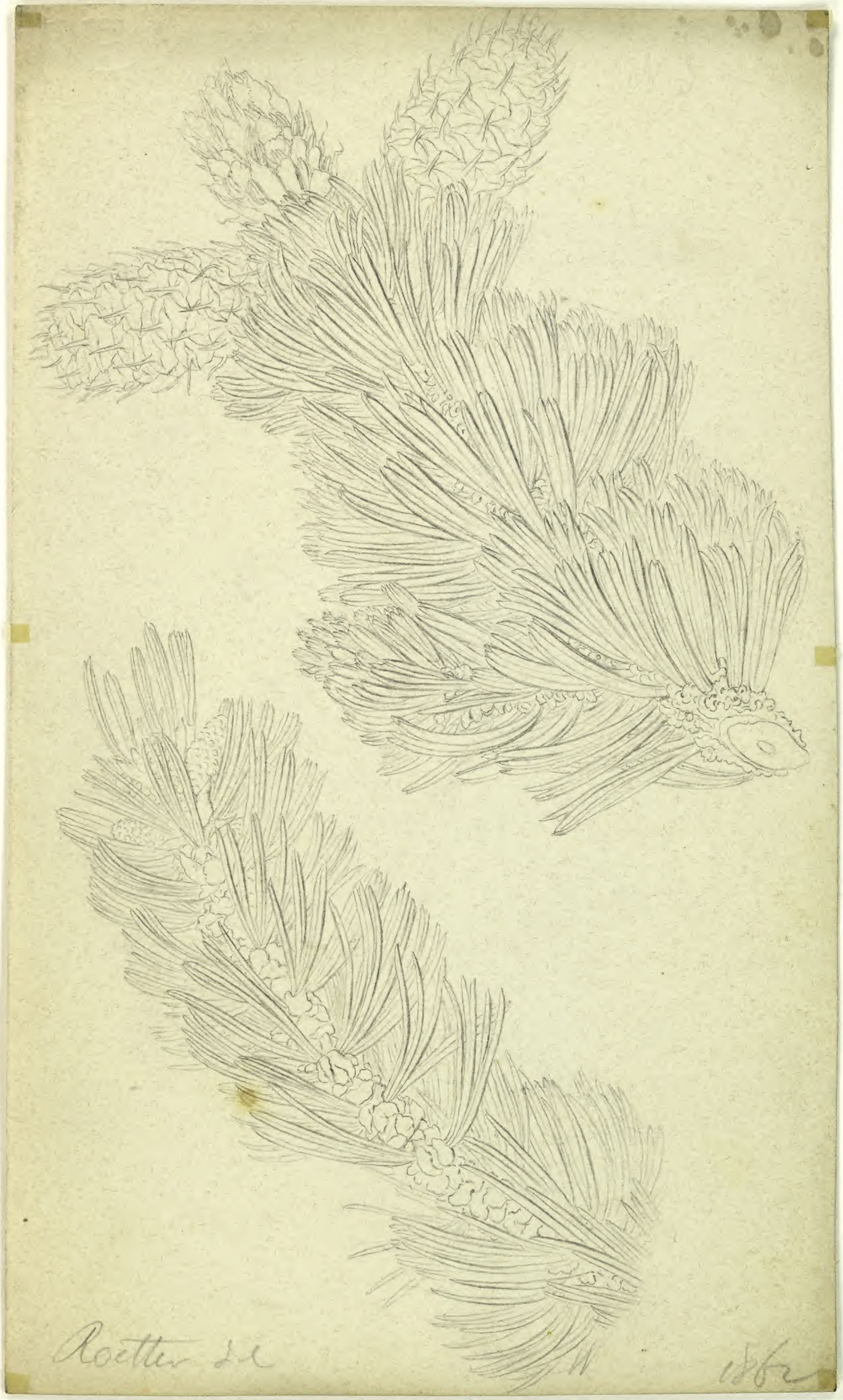

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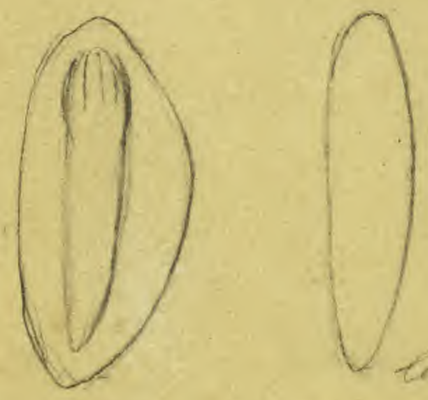
6 × 3 × 1½

P. aristata
var emarginata
Fruyo Pass 1876.

X4



lateral

albus very much compressed

2 seeds with 6, Cotyledons
2 - 7

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HENRY EHRHARDT,

PHARMACEUTICAL CHEMIST,

No. 301 South Fifth Street, Cor. Myrtle, ST. LOUIS.

No. Date 187

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0 1 2 3 4 5 6 7 8 9 10 cm
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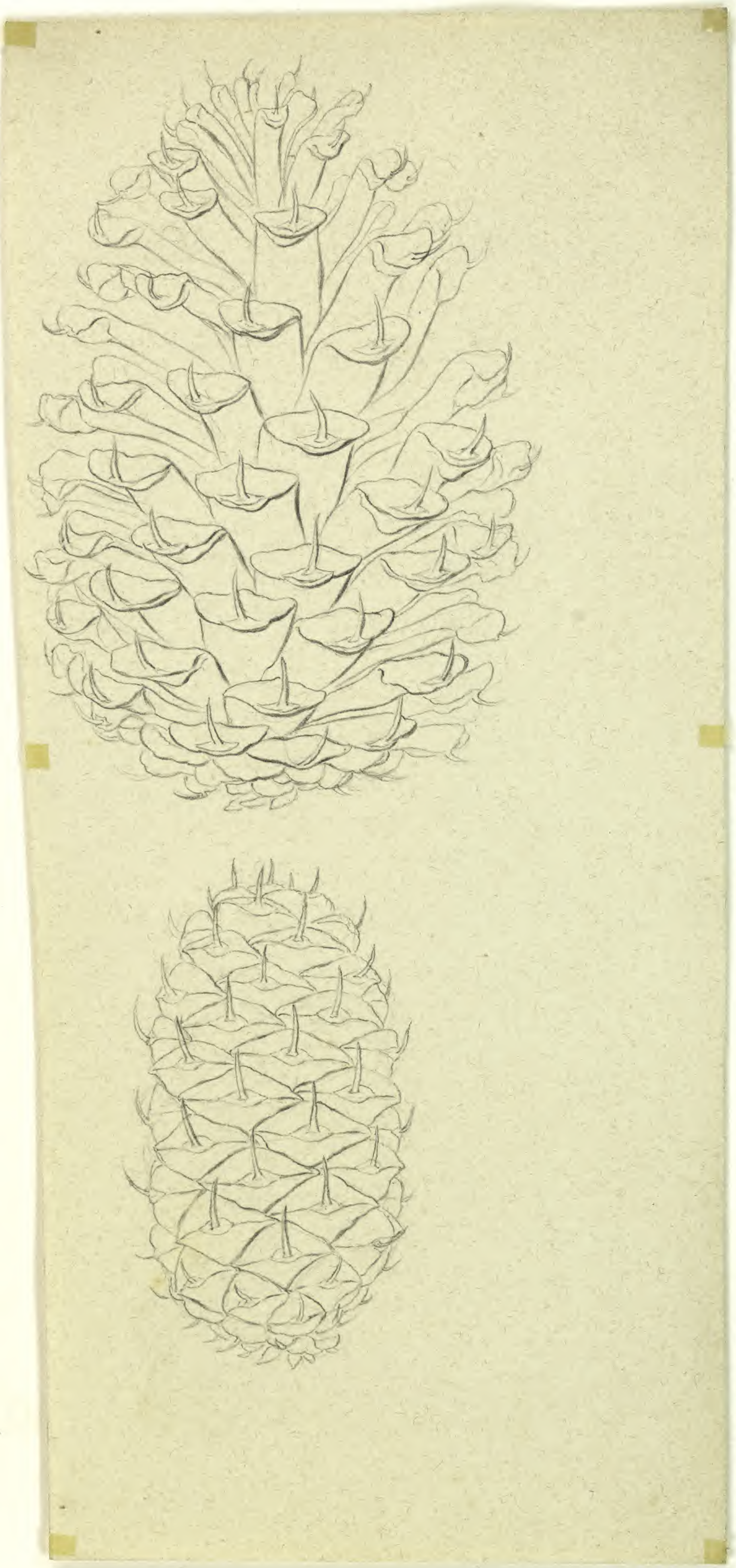

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cm
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"Pinus Thunbergii"
Afghanistan
May 16 1879
Griffith 1992 (Kew)

x 30

I find only two peripheral
ducts above, and without
hypoderm;
hypoderm around is very
slight

x 30

leaves 4–5½
inches
long

c

x 60

cone ovate
3 inches by
scales flabby

0 1 2 3 4 5 6 7 8 9 10
cm
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11574

Henry T. Rohlfing,

APOTHECARY.

No. 2600 Laclede Ave., S. W. Cor. Jefferson Ave.

ST. LOUIS, MO.

℞

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cm 0 1 2 3 4 5 6 7 8 9 10
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En se **conformant** aux indications ci-contre, on peut compter sur une **très-prompte expédition.**

GRAINES POTAGÈRES

Variétés nouvelles annoncées précédemment.

Voyez aussi, dans le CATALOGUE GÉNÉRAL DE GRAINES, les articles marqués *.

		fr.	c.
CAPRIER. Capparis.			
1639	sans épines. *C. inermis* . . paquet	1	50
	Cette variété est très-peu répandue; cependant, étant dépourvue de piquants, elle paraît présenter de grands avantages sur l'ancienne race pour la culture et pour la récolte.		
CAROTTE			
	rouge demi-longue de Carentan sans cœur. . . . . kil.	9	»
1881	— — — — 500 gram.	5	»
1882	— — — — 250 gram.	2	80
1883	— — — — 125 gram.	1	50
1884	— — — — 60 gram.	»	80
1885	— — — — 30 gram.	»	40
	rouge longue obtuse sans cœur. . . . . kil.	8	»
1992	— — — — 250 gram.	2	50
[illegible]	— — — — 125 gram.	1	50
	— — — — 60 gram.	»	80
2455	— — — — 30 gram.	1	20
2456	— — — — 15 gram.	»	70
	Excellente variété à côtes larges et serrées, blanchissant presque naturellement.		
CHICORÉE			
2994	frisée impériale. . . . . 60 gram.	2	80
2995	— — — — 30 gram.	1	50
2996	— — — — 15 gram.	»	80
	Belle et bonne race nouvelle.		
	à grosse racine de Bruxelles; Witloef . . . . . kil.	7	50
3282	— — — — 250 gram.	2	»
3283	— — — — 125 gram.	1	20
3284	— — — — 60 gram.	»	70
3285	— — — — 30 gram.	»	40
3286	— — — — 15 gram.	»	20
	Voy. pour la culture, etc., notre CAT. GÉNÉR.		
CHOUFLEUR			
h5256	impérial . . . . . 15 gram.	2	50
h5257	— — — — 10 gram.	1	80
h5258	— — — — 5 gram.	1	»
	Race de premier mérite, hâtive, trapue, à pomme grosse et à grain fin et serré.		
FEVE			
7610	d'Aguadulce, *à très-longue cosse*. . . . . kil.	2	»
7611	— — — — 500 gram.	1	»
7612	— — — — 250 gram.	»	60
	Superbe variété à longue cosse; très-précoce.		

		fr.	.
HARICOT			
9180	beurre ivoire, sans parchemin à rames (*Perrier*). kil.	3	20
9181	— — — — 500 gram.	1	60
9182	— — — — 250 gram.	»	90
	Haricot extrêmement remarquable par la blancheur éclatante de ses gousses; très-fertile; de précocité moyenne.		
9450	de La Val d'Isère, sans parchemin à rames (*Perrier*). kil.	3	20
9451	— — — — 500 gram.	1	60
9452	— — — — 250 gram.	»	90
	Variété tardive de grande vigueur, à cosse verte devenant blanc jaunâtre en mûrissant, sans parchemin, longue de 10 à 15 centimètres, ordinairement arquée, très-tendre.		
9660	Zébré gris, sans parchemin à rames (*Perrier*) . . . . kil.	3	20
[illegible]	— — — — 500 gram.	1	60
9691	— — — — 500 gram.	1	60
9692	— — — — 250 gram.	»	90
	Belle variété à cosses longues et droites; très-productive.		
10900	rose nain mangetout . . . kil.	3	50
10901	— — — — 500 gram.	1	80
10902	— — — — 250 gram.	1	»
	Bonne variété très-franchement sans parchemin; tardive.		
	Dolique de Cuba. . . . . kil.	6	»
11014	— — — — 60 gram.	1	»
11015	— — — — 30 gram.	»	60
	Remarquable par la vigueur de sa végétation, la beauté de son feuillage et les dimensions extraordinaires de ses cosses.		
OGNON			
14825	blanc très-hâtif de la Reine (*O. New Queen*) . . . . 30 gram.	1	50
14826	— — — — 15 gram.	»	80
14827	— — — — 10 gram.	»	60
	Très-petit, très-hâtif.		
14945	blanc gros plat d'Italie . . 30 gram.	1	50
14946	— — — — 15 gram.	»	80
14947	— — — — 10 gram.	»	60
	Magnifique Ognon blanc, à bulbe plat, très-large; tardif.		

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Pour les **paquets** et **quantités numérotés**, employer le **numéro d'ordre** seulement.

			fr.	c.
OGNON (*suite*)				
15215	géant de Rocca.	30 gram.	1	50
15216	— — — —	15 gram.	»	80
15217	— — — —	10 gram.	»	60

Bulbe très-gros, rond, de même saison que l'Ognon rond de Madère, de meilleure conservation.

RADIS

18454	demi-long blanc de Strasbourg. R. de l'Hôpital .	60 gram.	1	80
18455	— — — —	30 gram.	1	»
18456	— — — —	15 gram.	»	60

Variété très-estimée en Alsace comme Radis d'été ; demi-long, pointu. Très-recommandable.

			fr.	c.
RADIS (*suite*)				
18475	blanc géant de Stuttgart .	30 gram.	»	80
18476	— — — —	15 gram.	»	40

Race remarquable par son volume et la rapidité de son développement.

TOMATE

19679	rouge grosse lisse *ou* sans côtes	paquet	1	50

Remarquable par la beauté et la grosseur de ses fruits, qui sont complétement lisses, à chair rouge, très-pleine.

Haricot beurre ivoire.

Haricot de La Val d'Isère.

Haricot Zébré gris.

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interrupted descent and ascent took place from January to December, we find in 1862 some interruptions in the steps of that ladder. The electricity in February, 1862, is about four degrees higher than that of January, April somewhat higher than March, and July is the lowest instead of September in 1861. These trifling irregularities may be accounted for by differences in temperature and relative humidity, and by a greater number of thunderstorms in 1862. January of 1862, for instance, was so unusually rainy, that its relative humidity too was unusually high, diminishing thus electricity. But the general features of distribution of electricity throughout the year are apparent in both years, and we may in that respect divide the twelve months of each year into two or three groups. Computing the months which give the highest electricity and those which give the lowest in each year, we find that in both years the months of January, February, March, April, November and December exhibit the highest, and the months of May, June, July, August, September and October the lowest electricity. The first group gives

The aggregate monthly mean of	71.5	degrees of	electricity	in 1861
and	74.6	"	"	" 1862
While the second group gives	29.0	"	"	" 1861
and	25.7	"	"	" 1862

The second group prevailed therefore in 1861, and the 1st

flexed under the slowly acting pressure, without breaking. Metamorphic rocks are always displaced and folded, and never for any considerable distance horizontal. Where the foldings are most numerous and abrupt, reducing the strata to a series

THE SCIENTIFIC MONTHLY. 523

VI. The appearance of negative electricity was connected in

1861. No. times.	1862. No. times.	
30	32	with thunderstorms.
23	28	with rains without thunder and lightning.
20	4	with dry storms (without rain and without thunder and lightning).
4	3	with snow.
1	0	with fog.
78	67	

VII. *Relation of Rain and Snow to Electricity.*

Rain without thunderstorm was accompanied

	By Positive Electricity.		By Negative Electricity.		By no Electricity.	
	In 1861.	In 1862.	In 1861.	In 1862.	In 1861.	In 1862.
January	7	5	3	2		2
February	2	1	4	1		
March		5	6	4		
April	8	6	7	11		1
May	10	7	1	1	3	1
June	7	1				3

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flexed under the slowly acting pressure, without breaking. Metamorphic rocks are always displaced and folded, and never for any considerable distance horizontal. Where the foldings are most numerous and abrupt, reducing the strata to a series of parallel dips by the pressing of fold upon fold, then the metamorphism is most complete."—*Dana.*

In the United States thermal springs correspond exactly with these corrugations. Corrugations do not exist on the plains of the Atlantic coast nor in the Mississippi region. Neither do thermal springs.

"The single locality in Arkansas is referrable to the Orchean Ozark corrugation. We may consider the heat of springs in the Appalachians due entirely, as argued by Rogers, to the normal, we might almost say static, downward increase of temperature brought to bear by means of deep-seated water courses following faults and curved strata."—*Gilbert.*

Accepting the volcanic theory in regard to hot springs, we would naturally expect that the waters would be the warmest in the regions of latest geological formation. And such is in fact the case, as the following table of some of the thermal springs in the United States will show:

NAME.	LOCALITY.	Temp. F.
SOLEIL		
grand. Tournesol. **Hélianthe**		
petit vrai à huile, très-produ		
grand de Russie.		
SORGHO. *Voy.* aux CÉRÉALES.		
SOUDE		
commune.		
SPERGULE		
ordinaire.		
En récolte dérobée pour fou		
grande *dite* **géante** . . .		
Demande un sol plus fécond		
TABAC		
du Connecticut. . . . . (G		
de l'Ohio.		
de la Havane.		
de Maryland.		
de Virginie *ou* d'Alsace. . .		
*Prior jaune de Virginie. . .		
A grandes feuilles ; très-est		
Wigandioides		
de Hongrie de Csetneck. .		
— de Debröe		

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twelve or more feet, and is composed of the material most abundently held i solution by the hot springs, viz.: silica. But the mounds made by the hot water in the region of Gardner's River offer an exception; they are of a calcareou nature. These differences are owing to the geological formation of the strata ove which the hot waters flow. Another locality will show the geyser in full height o its power, while in still another is an apparently new formation, just beginning t exhibit the phenomena of a flowing or boiling spring.

The Geysers are one of the forms of thermal springs and present man curious and astonishing phenomena. They are found in many different parts o our earth and in each place present certain features peculiar to that region. Is not wonderful that in the cold and dreary arctic region of Iceland, where th snow and frozen waters exist as permanent adornments of the land, and the fe short days designated out of courtesy Summer, are hardly sufficient to melt th investiture and give a start to vegetation in the sheltered valleys; is it not wo derful, that amid such surroundings there should burst from the earth wat having the temperature above the boiling point? What contrast could be greate and what could illustrate more forcibly the great diversity exhibited in all t workings of nature?

Formerly active geysers were found only in Iceland; lately, however, so exceedingly beautiful and grand fountains of this nature has been discovered

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	1861. No. times.	1862. No. times.

VI. The appearance of negative electricity was connected in

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cm 0 1 2 3 4 5 6 7 8 9 10

Pour **un kil.** ou **moins,** employer le **numéro d'ordre** seulement.

Pour **plus** d'un kil. et pour les **articles sans numéros, indiquer la quantité** et le **nom.**

CAROTTES (*suite*)

			fr.	c.
	*rouge demi-longue de Carentan, sans cœur (*nouv.*).	kil.	9	»
1881	— — — —	500 gram.	5	»
1882	— — — —	250 gram.	2	80
1883	— — — —	125 gram.	1	50
1884	— — — —	60 gram.	»	80
1885	— — — —	30 gram.	»	40

Plus longue, mais moins grosse que la Car. rouge courte; cylindrique, obtuse, collet fin; sans cœur; très-bonne pour forcer.

1900	†**rouge demi-longue pointue**	kil.	7	»
1901	— — — —	500 gram.	3	50
1902	— — — —	250 gram.	1	80
1903	— — — —	125 gram.	1	»
1904	— — — —	60 gram.	»	60
1905	— — — —	30 gram.	»	30
1920	†**rouge demi-longue obtuse.**	kil.	7	»
1921	— — — —	500 gram.	3	50
1922	— — — —	250 gram.	1	80
1923	— — — —	125 gram.	1	»
1924	— — — —	60 gram.	»	60
1925	— — — —	30 gram.	»	30
1940	rouge demi-longue Nantaise. Carotte sans cœur. . . .	kil.	7	50
1941	— — — —	500 gram.	4	»
1942	— — — —	250 gram.	2	20

			fr.	c.
1960	*rouge demi-longue de Luc. .	kil.	7	50
1961	— — — —	500 gram.	4	»
1962	— — — —	250 gram.	2	20
1963	— — — —	125 gram.	1	50
1964	— — — —	60 gram.	»	80
1965	— — — —	30 gram.	»	40

Hâtive; excellente pour la culture de primeurs en pleine terre; un peu plus longue que la Car. demi-longue obtuse, plus grosse du collet et plus mince du bout, qui est arrondi.

	*rouge longue obtuse sans cœur (*nouv.*)	kil.	8	»
1992	— — — —	250 gram.	2	50
1993	— — — —	125 gram.	1	50
1994	— — — —	60 gram.	»	80
1995	— — — —	30 gram.	»	40

Très-belle var. à racine cylindrique dans toute sa longueur, à bout obtus, collet fin et peu feuillu; chair fine et excellente; sans cœur.

	rouge longue. 100 kil. 320 fr.	kil.	3	50
2000	— — — —	kil.	3	50
2001	— — — —	500 gram.	2	»
2002	— — — —	250 gram.	1	20
2003	— — — —	125 gram.		
2004	— — — —			
2005	— — — —			
2022	*rouge longue de St-Valéry.			
2023	—			

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twelve or m
solution by the hot springs,
in the region of Gardner's
viz.: silica. But the mounds made by the hot wate
River offer an exception; they are of a calcareo

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En se **conformant** aux indications ci-contre, on peut compter sur une **très-prompte expédition.**

Nous **ne fournirons pas** de quantités plus **petites** que celles offertes.

			fr.	c.
BONNET d'Électeur. *Voy.* PATISSON.				
BONNET turc. *Voy.* GIRAUMON.				
BOURRACHE. *Voy.* aux PLANTES OFFICINALES.				
BROCOLI. *Voy.* CHOU-BROCOLI.				
CAPRIER				
	cultivé. *Capparis spinosa* .	5 gram.	2	50
1629	— — — —	paquet	»	80
1639	*sans épines. *C. inermis.* .	paquet	1	50

Cette variété présente, à notre avis, un très-grand intérêt, attendu que, dépourvue de piquants, elle rend la culture et la récolte plus faciles.

CAPUCINE tubéreuse.. . 100 bulbes 30 fr., 25 bulbes 8 fr., 1 bulbe » 50.
Voy. aussi aux GRAINES DE FLEURS.

			fr.	c.
CARDON				
1755	**de Tours**.	30 gram.	1	»
1756	— — — —	15 gram.	»	60
1757	— — — —	10 gram.	»	40
	Épineux, côte très-pleine.			
1775	**d'Espagne**	30 gram.	»	60
1776	— — — —	15 gram.	»	40
1777	— — — —	10 gram.	»	30
	Sans épines, moins plein que le précédent.			
1795	plein inerme	30 gram.	»	80
1796	— — — —	15 gram.	»	50
1797	— — — —	10 gram.	»	40
	Sans épines; très-bon.			
1815	Puvis	30 gram.	1	»
1816	— — — —	15 gram.	»	60
1817	— — — —	10 gram.	»	40
	...u épineux, côtes larges, demi-pleines.			

CAROTTES

grand. Tournesol. Hélianthe annuel.			110	»	1	20
petit vrai à huile, très-productif.			»	»	1	50
grand de Russie.			»	»	1	60

4 à 6 kilog.

SORGHO. *Voy.* aux CÉRÉALES.

SOUDE

commune.	hectog.	1	»	»	8	»

SPERGULE

ordinaire.			70	»	»	80

En récolte dérobée pour fourrage vert ou pour enfouir.

20 à 30 kilog.

grande *dite* **géante**			90	»	1	»

Demande un sol plus fécond que la Spergule ordinaire.

TABAC		hectog.				
du Connecticut.	(Graines récoltées en Algérie) . . .	2	20	»	»	18 »
de l'Ohio.	*Id.*	2	20	»	»	18 »
de la Havane.	*Id.*	2	20	»	»	18 »
de Maryland.	*Id.*	2	20	»	»	18 »
de Virginie *ou* d'Alsace.	*Id.*	2	20	»	»	18 »
*Prior jaune de Virginie.	*Id.*	2	20	»	»	18 »

A grandes feuilles ; très-estimé pour la production du Tabac.

Wigandioides	*Id.*	3	»	»	»	25 »
de Hongrie de Csetneck		10	»	»	»	» »
— de Debröe		10	»	»	»	» »

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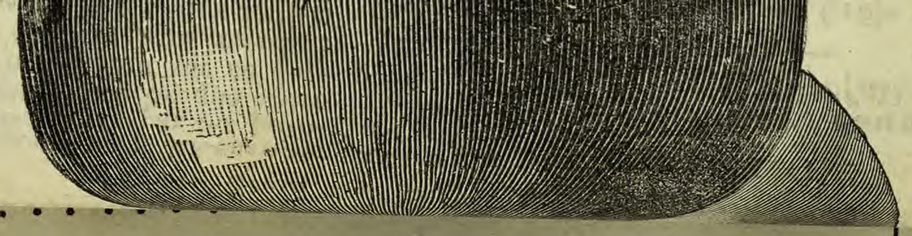

harmala. Plante tinctoriale . . . . . .

PIMPRENELLE				
grande (*prix var.*).		70 »	» 80	30 kilog.
PLANTAIN				
des prés. Rib-grass.		90 »	1 »	20 —
†POIS				
gris de printemps. Bisaille (*prix var. et au mieux*)		33 »	» 40	160 à 200 kilog.
gris d'hiver.	*id.*	36 »	» 45	(200 à 250 litres).
perdrix (d'hiver et de printemps)	*id.*	40 »	» 50	
blanc des champs, du Canada. Excellente race fourragère.		40 »	» 50	
POLYGONUM tinctorium.				En place : 6 kilog.
Persicaire indigo. Renouée tinctoriale	hectog. 3 50	» »	30 »	En pépinière : 500 gr.
POMME DE TERRE. *Voy.* au POTAGER.				1000 à 1400 kilog.
PSYLLIUM				
plantago		180 »	2 »	5 à 10 kilog.
RAIFORT				
champêtre de l'Ardèche.		120 »	1 30	4 à 5 kilog.
champêtre de l'Ardèche, de plants repiqués.		160 »	1 70	

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Primevère de Chine frangée.

Thlaspi hybride nain.

Torenia Fournieri.

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Cinéraire hybride naine à grande fleur

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e; so that if we hear a clap of thun-
late that the di[illegible] rge of electricity
[illegible] fired at a dis-
s heard.

3

over a space of
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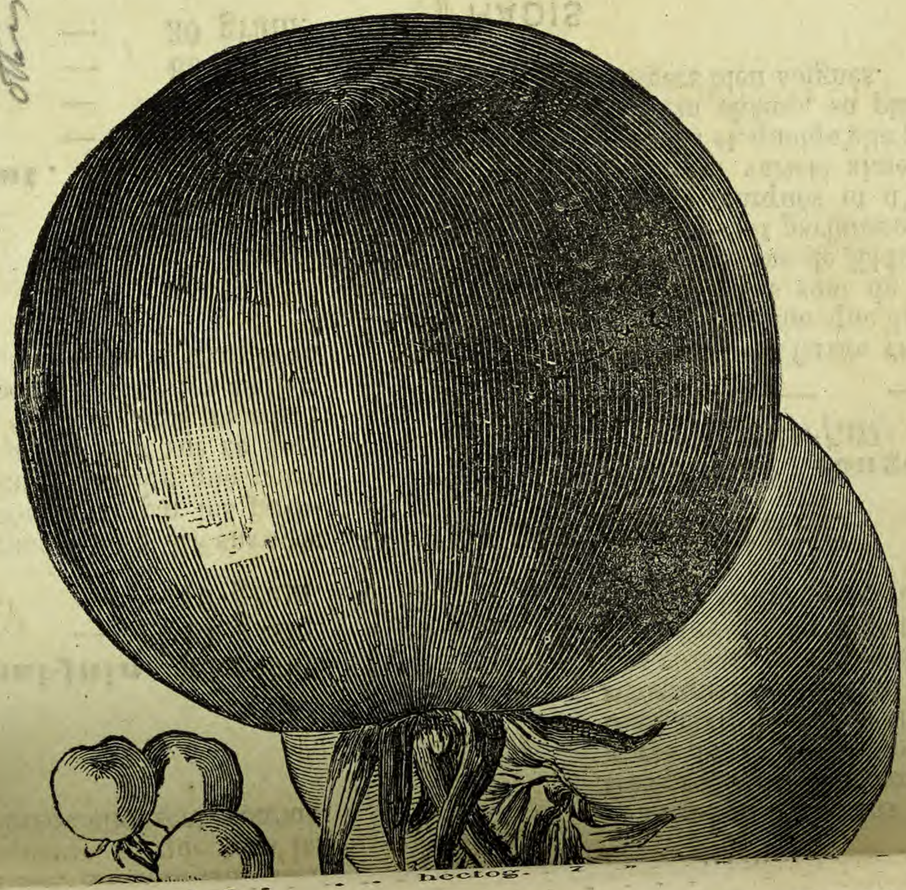
key, has been
t has a grayish
and sulphide

Tomate pomme améliorée.



ctoriale . . . . . hectog. 70 »| » 80 30 kilog.
. . . . . 90 »| 1 » 20 —
. . . . . » »| » 40 160 à 200 kilog.

OGNON

14895	**blanc plat de mai-juin**	30 gram.	1 50
14896	— — — —	15 gram.	» 80
14897	— — — —	10 gram.	» 60

Cette belle race d'Ognon nous a été envoyée d'Italie, où elle est très-estimée par les jardiniers; à peu près de même précocité que notre Ognon blanc hâtif de Paris, elle a sur ce dernier un avantage qui n'est pas sans mérite : c'est de donner, à précocité égale, des bulbes sensiblement plus gros, très-plats et d'un beau blanc argenté.

PANAIS

	Sutton's Student . . .	kil.	6 »
15572	— — — —	250 gram.	2 »
15573	— — — —	125 gram.	1 20
15574	— — — —	60 gram.	» 70
15575	— — — —	30 gram.	» 40

Cette variété a obtenu une certaine réputation en Angleterre, où on la cultive depuis quelques années, de préférence au Panais demi-long de Guernesey. De même forme que ce dernier et à peu près de même grosseur, elle ne s'en distingue pas à première vue, mais elle est d'un goût plus fin et paraît moins sujette à devenir ligneuse, de sorte que, au point de vue culinaire, ce serait une excellente acquisition.

très-productif. Il [illegible] après le Pois sans parchemin nain hâtif Brethon, mais il est plus chargé que lui. Il est surtout remarquablement égal en hauteur et en fertilité. Les cosses, de longueur moyenne, sont produites par paires; elles sont très-franchement sans parchemin. Grain gros, rond, blanc.

POMME DE TERRE

	Kidney rouge hâtive (*Wonderfull*)	kil.	4 50
	— — — —	250 gram.	1 20

Très-jolie et fertile variété potagère, à peu près de même saison que la quarantaine de Noisy; les tubercules sont de forme oblongue, aplatie, avec une forme de Kidney plus ou moins accentuée; ils sont parfaitement lisses, avec des yeux à peine marqués et d'une belle couleur rouge vif. Cette variété aime une terre riche et bien cultivée, et, quoiqu'elle puisse assurément réussir en plein champ, sa place est surtout dans les potagers bien soignés.

RADIS

18155	**rond écarlate hâtif.** .	30 gram.	1 20
18156	— — — —	15 gram.	» 70

Cette jolie race diffère du Radis rond écarlate ordinaire par la finesse de son feuillage, par la forme un peu aplatie de ses racines et par sa précocité de 2 ou 3 jours plus grande. Elle a déjà fait son apparition à la Halle de Paris, où elle est reçue avec faveur.

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citizens, to arrange for the comfort and enjoyment of their guests, while attending the meetings; excursions are planned, and no pains will be spared to make the occasion one to be long remembered as of profit and enjoyment. The meeting opens on the 19th of August, 1876, and will probably last about 10 days.

The subject of vivisection, or the performance of surgical operations and experiments upon living animals, is justly receiving much attention in England and in this country. It is a grave question whether the small benefit derived from these cruel operations justifies the vast amount of suffering entailed upon the innocent and helpless victims.

Sound travels about thirteen miles a minute; so that if we hear a clap of thunder half a minute after the flash we may calculate that the discharge of electricity is six and a half miles off. It is noticed that the flash of a cannon fired at a distance from the beholder is seen some seconds before the discharge is heard.

In one second of time, at one beat of the clock, light travels over a space of 192,000 miles. If a cannon ball were fired towards the sun, and should maintain its full speed, it would take twenty years for it to reach that luminary, and yet light travels through this vast space in seven or eight minutes.

METEORITES.—A meteorite which fell near Virba (?), in Turkey, has been described before the Academy of Sciences of Paris, by Danbrice. It has a grayish silicated exterior and contains numerous grains of nickelerous, iron and sulphide of iron. It contained also some grains of chromic iron.

534-42

7 sylvestris

OGNON 14895 14896 14897
blanc plat de mai-juin 30 gram. 1 50
— — — 15 gram. » 80
— — — 10 gram. » 60
POMME DE TERRE
Cette belle race d'Oignon nous a été envoyée [illegible] remarquablement égal en hauteur et en fertilité. Les cosses, de longueur moyenne, sont produites par paires; elles sont très-franchement sans parchemin. Grain gros, rond, blanc.

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As the discovery of the metal gallium may justly be regarded as the most important chemical achievement of the last year, all facts regarding it are received with special interest. M. Lecoq de Boibandrau, whose name is associated with the discovery, recently communicated to the French Academy, the following facts regarding its physical and chemical properties.

"Pure gallium, of which he had now prepared nearly one and one-half grains, melts at about 85° Fahr.; hence it liquefies when it is seized between the fingers. It is very easily held in superfusion, which explains how a globule has been kept liquid for weeks in temperatures descending occasionally almost to zero.

Electrolyzed gallium from ammoniacal solution is identical with that obtained from polassic solution. Once solidified the metal is hard and resistant, even at a few degress under its melting point; but it can be cut, and has a certain malleability. Melted gallium adheres easily to glass, on which it forms a beautiful mirror, whiter than that produced by mercury. Heated to a bright red in presence of air,

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pean caves (with perhaps the exception of the celebrated Neauderthal, the age of which is doubtful) do not differ more from Europeans than do several of the lowest modern races. In other words, no proof of the existence in former times of a race of men inferior in general organization to the Australian, and forming any nearer approach to the lower animals, has yet been discovered.

The amount of good a single bird does and is continually effecting for the human race, is inestimable, and can hardly be overrated. One robin or thrush will destroy more noxious insects in a day than a man could in a week. The little grain and fruit they eat is far overbalanced by the insects they destroy, which, if left to multiply, would soon destroy all vegetation and make this green earth a barren desert. The swallow, night-hawk and martin live entirely upon insects, and their whole lives are given in the benefit of man. Man's own interest should be to spare the birds. Not one should be allowed to be destroyed.

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reins zur Beförderung des Gartenbaues, 1860, Nos. 1–52—1861, Nos. 1–6, Berlin, *from the Society;* Atti della Societa Ital. di Scienze Nat., Milano, Vol. II., Fasc. 2, 1860, *from the Society;* Atti dell I. R. Istituto Veneto, T. V., Ser. iii., Disp. 10—T. VI., Ser. iii., Disp. 1–3, 1860–1, *from the Society;* Visir-und Recheninstrumente von Ernst Sedlaczeh, Wien, 1856,—Rechenschieber, von E. Sedlaczeh, Wien, 1856,—Kompendium der ebenen und sfärischen Trigonometrie von E. Sedlaczeh, Wien, 1856, *from Mr. Senoner;* L'Ortolano, Giornale Popolare d'Orticultura, Trieste, Anno I. 1–12, III. 1–9, 1859–60,—Allocuzione da Prof. Adolfo Stopice, Trieste, 1860, *from the Society;* Fr. Ambrosii Flora Tiroliæ Australis, Vol. II., Pt. 4, *from the Author;* Verhandl. des Naturh. Vereins, Bonn, Jahrg. XVII., 1–2, 1860, *from the Society;* Sitzungsb. der K. K. Akad. der Wissenchaften, Wien, Band XLII., No. 22–28, 1860, *from the Society;* Nachrichten von der Georg-Augusts-Univ. u. der K. Gesellsch. der Wissensch., Göttingen, 1860, No. 1–29, *from the Society;* Bull. de la Société Linnéenne de Normandie, Vol. V., 1859–60, Caen, 1861, *from the Society;* Mém. de l'Acad. Imperiale de Metz, Ann. XLI., 1859–60, *from the Academy;* Jahrbücher des Vereins für Naturk. in Nassau, XIV. Heft, Wiesbaden, 1859, *from the Society;* Dr. J. C. Ed. Hoser's Rückblicke, Prag, 1848, von Dr. Weitenweber,—Sitzungsb. der K. böhm. Gesellsch. der Wissenschaften, Prag, 1859, Juli–Dec.—1860, Jan.–Juni, *from the Society;* I. Bericht des Offenbacher Vereins für Naturk, 1860, *from the Society;* Würzburger Medicin. Zeitschrift, II. Band, 1–2 Heft, 1861, *from the Society;* Der Zoologische Garten, von Dr. D. F. Weinland, Jahrg. II., No. 1–6, 1860–61, *from the Editor;* XX. Bericht über das Museum Francisco-Carolinum, Linz. 1860, *from the Institution;* Monatsb. der K. Pr...

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Dr. Koch presented specimens of quartz and of the silicious conglomerate from Madison County mentioned in Dr. Hilgard's letter.

Dr. Engelmann stated that the mean temperature of July (77.°5) had been lower than the usual mean of that month, and that the fall of rain during the same month (2.04 inches) was about one-half less than usual.

Dr. Wislizenus stated that the mean of atmospheric electricity of July had been 3.5° less than that of the month previous, and that the amount had been gradually decreasing since winter.

August 19, 1861.

The President, Dr. ENGELMANN, in the chair.

Six members present.

A letter was read from A. F. Bandelier, Jr., Highland, Ill., Aug. 1, 1861, communicating meteorological observations at Highland.

The following donations to the library were received:

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May 1862

Pinus resinosa

ex herb Farw, Wisconsin

×2

young leaves

×2

terminal bud

lower scales obtuse

old pair of leaves,

×2

sheath.

bract orbicular ovate obtuse (originally so, or point fallen off?) persistent as long as leaves

bract

young sheaths 10–11 lines long; old ones 2–3 lines long

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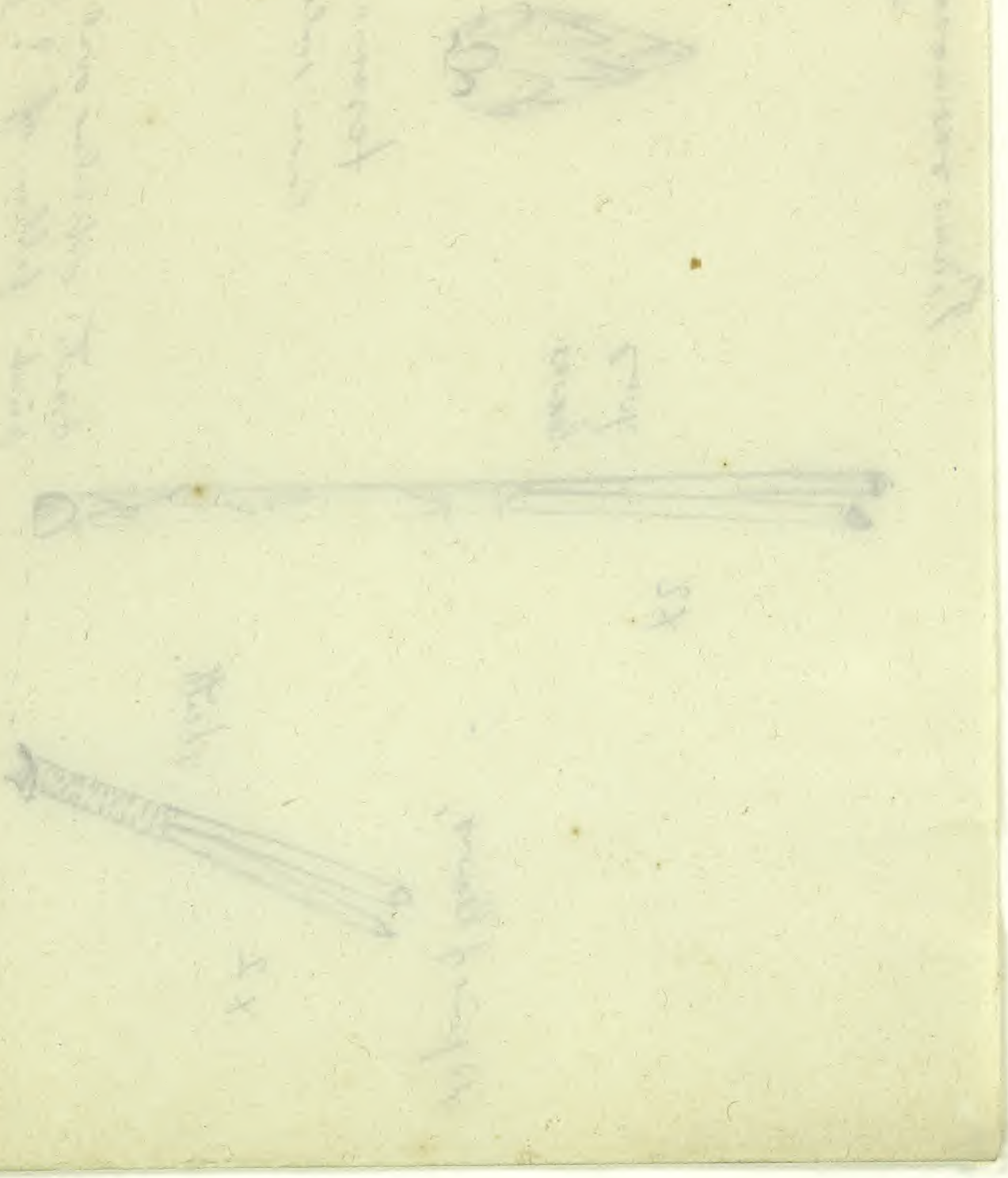

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June 1863

Pinus resinosa

Maine

×30

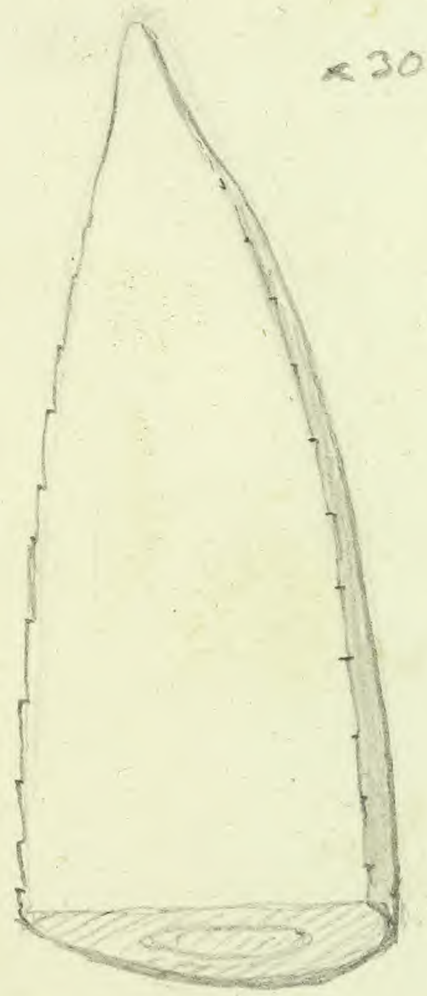
Section, lower surface and point of leaf of last year, green, fresh not soaked.

×30

×60

-- green

-- white



BOTANICAL GAZETTE
CHICAGO AND CHICAGO
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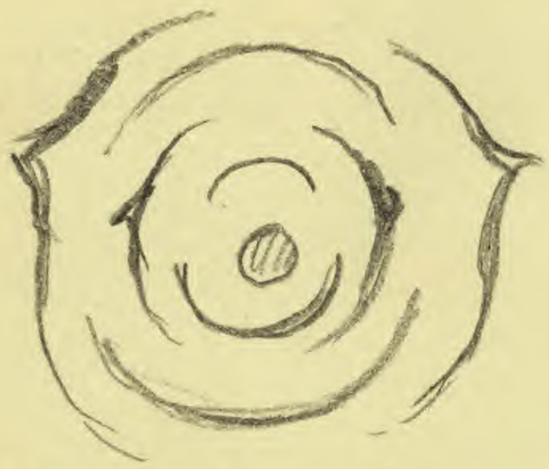
Pinus resinosa Ait. Missouri, April & May 1865



The 6 outer perigonial scales as well as the bract are articulated below the middle, and the upper part falls off long before the anthers open — they are just fully off now, April 24th, when the anthers (purple) are only 2 lines long.

2. full flower May 7th 1865

Pollen

$\frac{13.5-15}{415}$ =0.033-36 line
mostly about 0.035

It seems that the inner perigonial scales fall off entirely as in the effete anthers I usually find only 4 scales or rather their bases! or anthers with only 4 or 5 ? Talisecall?
(May 7 1865)

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Pollen × 415

May 5 1872

P. Am resinosa

H.O.B. Missouri

the 6 outer and proper involucral scales are always articulated to the bract is - the 7th if present if large also - distinctly articulated - if small it is not.

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Leitch & Carlies

DRUGGISTS

South-west Corner Fifth and Market Streets

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